

# SINC - LINK

Vol. 5 No. 3

MAY - JUNE 1987

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**TORONTO TIMEX - SINCLAIR USERS CLUB**

P. O. Box 7274 Stn. A Toronto, Ont., M5W 1X9  
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## LETTER FROM THE EDITOR

"It was a HOT stormy night....." Hi there. This is your editor speaking. I have been very busy since last I addressed you ---- I have had a BABY!!! Guess when I had him? The day after the last newsletter was "put to bed", so to speak. His name is AUBREY ANDREW COTTLE. Aubrey was his father's idea and Andrew is in honour of my father Gordon Andrews McLean (a good Cape Bretoner name if you ever heard one eh?) I'm still trying to get our illustrious president to change a diaper FAT CHANCE!

I understand that there is going to be a vote regarding whether or not there is to be a summer break. If there is to be a summer break the next newsletter will be mailed out. If you plan to be on the receiving end you had better make sure that your correct address is listed on the members list. Any newsletter articles should be handed in by the NEXT MEETING or make some arrangement to get it to the editor.

Expect the next newsletter at your doorstep by August 9th!! (or thereabouts - tee hee)

Noreen Cottle

### General Notes:

The software library has now been supplied with a graphics package developed by Jim Turner of the Ottawa/Hull Users group. The package, with the exception of a few small m/c routines is all in Basic and is to be used on the 2068 with the Joystick ports. The short manual is also available in the library. Another package just received is a data base package being developed by R. Mulder for use with the OS-64 cartridge. It is fully menu driven but is a first run at a full blown data base package and has some inherent bugs, particularly in the save and load subroutines. Should anyone wish to lend some assistance to Mr. Mulder in testing the package and correcting or suggesting corrections to the program, he would sure be greatfull. For those who do not have the OS-64 cartridge, the program can be easily modified to work on a 32 column screen rather than 64. No manual is available as yet.

### FOR SALE

- 1 - Commodore Monitor Model 1702  
Has RGB and Composite
- 1- TS2050 Modem and all the software.
- 1 - TS2040 Printer
- 1 - Aerco PrinterInterface
- 1 - AERCO Disk System -2 Drives, CP/M, 30 disks w/SW
- 1 - Technical Manual for the TS2068
- 1 - OCD Assembler (Spectrum), PRO/FILE, HOT Z on tape and cartridge, Some games

For prices and further information call  
Floyd Chrysler at 416 924 2327 (eves)  
190 St. George St. 596 6211 (days)  
Toronto, Ont. M5R 2N4



## SincBits

Ian Robertson

**UPDATES:** The second MIDWEST T/S COMPUTER FEST, in Indianapolis, was an unqualified success, both from a vendor and a spectator (visitor) viewpoint. All the vendors were there, with the exception of E. Arthur Brown, Russell Electronics and Sunset Electronics. My cup runeth over and my wallet runeth out of cash - what temptation! Next year I understand that it will be held in San Francisco - think about combining a holiday with a visit to the fest, even for just one day, it's worth it. Of course I attended all the hardware oriented seminars and was impressed by their content. One seminar was conducted by Bill Pedersen (The Widjup Co.) on the subject of TS2068 bank switching. According to Bill he will soon be marketing a system which will allow 2068 owners to bank switch in excess of 1 Mbyte of RAM, and the price will be quite affordable. I look forward to purchasing and operating such a system. Now for the RUMOUR DEPT. - according to Stuart Newfeld of ZEBRA SYSTEMS, they will continue to support T/S computers as evidenced by their 6 tables of T/S hardware/software - KNIGHTED COMPUTERS will continue to support the TS2068, but have sold their QL business to Sharps Inc. Sir Clive has announced the arrival of his latest portable computer, the Z88 (no, not the ZX88). It is a Z80 8 bit, approx 8 1/2" x 11" x 1 1/4", weighing in at under 2 lbs., with an 80 column LCD "Supertwist" display, 32k of RAM (expandable to 3 Mbytes), 128k of ROM with built in word processing, spreadsheet and utilities. While it is not IBM compatible, it allows transfer of data files. It will sell for approx. \$300.00 US.

**SPECTRUM:** Not too much news this time about my (almost) favourite computers, except to state that a disk drive interface is now available which is supposed to be compatible with both the 48k and the 128k versions of the Speccy. It is called "THE DISCIPLE" and costs #74.00 (pounds sterling) plus shipping, from Rockfort Products, 81 Church Rd., London NW4 4DP, U.K. They take plastic. It has the much loved NMI dump, centronics IF, networks with IF1, and handles two SS or DS, 40 or 80 track 3", 3 1/2" or 5 1/4" drives. Amstrad also has another "Sinclair" available, called the ZX Spectrum 128 + 3. This one comes with a 3" disk drive built in. I have not seen any advertised yet, so no pricing is available. One last word on the state of Spectrum magazines. ZX COMPUTING MONTHLY seems to be the ONLY U.K. magazine that still caters to serious users/hobbyists. All the others are 100 per cent games oriented and should only be considered if your interests lie in that direction.

**2068:** Larry Kenny of LARKEN ELECTRONICS has done it again! He has produced a disk interface cartridge, that plugs into the cartridge port, which turns your RAMEX interface into a LARKEN interface. And it works! It comes with the DOS on a 2764 Eprom and the FORMAT software on tape. The FORMAT programme is loaded into the computer and after configuring it to suit your (up to 4) drive system, it loads itself to disk. I have tried it on both SSDD 3" and 5 1/4" DSDD drives, without a problem. The LARKEN extended basic commands also work on my RAMEX hybrid. Now for the interesting part - the cartridge does

not have to be removed from the cartridge port when the RAMEX DOS is used AND by switching off the RAMEX DOS eeprom, the RAMEX does not have to be modified in any way. I also saw Larry's latest TS2068 Disk Interface at the Fest (RMG Enterprises) and it looks GREAT. It is slightly smaller than the RAMEX and sports a Kempston joystick port and an NMI button. John Olinger was also at the Fest and said that his SAFE DOS is now up to version 2.32, but that it still does not have an "erase" function. Ed Grey of GREY & CLIFFORD COMPUTER PRODUCTS, P.O. Box 2186, Inglewood, CA 90305, was also at the Fest with version 4.1 of Specterm-64 (for either the Spectrum or the TS2068) and the companion Z-SI/D (RS232 IF). This terminal software allows you to have 64 characters on the screen without using the Zebra OS-64 cartridge and to operate at either 300 or 1200 baud. The Z-SI/D allows the 2068 owner to use a 1200 baud modem with the software. It also operates at 19200 baud for more exotic hardware applications such as printers and plotters. Tom Simon, of THE CUYAHOGA VALLEY SOFTWARE WORKS, 615 School Ave., Cuyahoga Falls, OH 44221 was also demonstrating their latest version of SPDOS for the Olinger disk interface. If any JLD Users are interested in using a different DOS, this is the one. It comes on two disks, one to boot the JLD/SPDOS system and the other has the SPDOS software. The 18 page Manual is easy to read and is self explanatory. One busy booth at the Fest was the NOVELSOFT booth. According to Dave and Ariel, ZXPRT and ARTWORX 1.1 were received very well. As almost every serious user already had TIMACHINE, sales were a bit slow. It was encouraging to see GREAT software selling well at the Fest - the message being "you should support your local software house, if you want to see further T/S software". Pirates take note!

**QL:** The QL was well represented at the Fest by A+ Computer Response, Sharps Inc., Quantum Computing, Variety Sales, Brice Road Pharmacy, C.W. Associates, Curry Computer, RMG Enterprises and Mark Fendrick (Markel). Tom Bent and David Rothman hosted the QUANTA (IQLUG) booth, offering memberships, back issues of QUANTA and copies/updates of the QUANTA Library. The Library is now 8+Mbytes of 5000 software (12 80 track disks) and sells for \$110.00 US to members of QUANTA. I purchased GSPELL from Curry Computer, even though they warned me that it is only compatible with the standard issue of QUILL, which is called QLWP in the US. They were correct, it would not work with my v2.3 QUILL. But, after changing the QUILL "boot" reference to QLWP and changing the file names QUILL and QUILL\_HOB to QLWP and QLWP\_HOB it worked without a hitch. Thanks Curry Computer for being so honest, I have sent them a letter detailing the above, to assist with future sales. One other interesting purchase was the Schon keyboard. Contrary to UK advertising, it is NOT a simple "replacement" (for the North American QL). A considerable amount of fitting/cutting, mostly at the rear, was required before it fitted properly. When typing with this keyboard, it is possible to have quite a few "repeats" if you are NOT a touch typist and have a tendency to linger just a bit before going to the next letter. All things considered, including the cost of \$89.95 US, it is quite an acceptable keyboard replacement. One last item of interest, according to Tom Bent the QL disk controller WD1770 is not as fast as the newer WD1772-02 chip. Therefore, by replacing the WD1770, your QL disk drives will not make that angry chattering when formatting and initializing.

## LARKEN CARTRIDGE DOS

Larry Kenny has come through with a cartridge DOS for his Disk Operating System. How does this DOS stack up against the original EPROM DOS and the disk DOS'?

Firstly, it takes a little getting used to. Not that it is really that difficult. It uses the standard TIMEX keyword commands for SAVE, LOAD, PRINT, MERGE, plus some less familiar keyword commands such as FORMAT, ERASE, and CAT. All these commands must be prefaced with the command PRINT USR 100:

It is possible to use a shorter prefacing command PRINT #4. The computer has to be set up for this abbreviated command by previously having entered an instruction PRINT USR 100: OPEN #4,"dd". This instruction only needs to be set up once at the start of a session with the computer.

The cartridge appears to bank-switch the ROM in order to perform it's tasks. It contains an 8K EPROM and an 8K RAM chip to do its tasks, and uses no computer memory.

Although my cartridge works properly, some members who have received the cartridge are having difficulty using it in the Spectrum mode. Simply put, it does not work. While the cause still remains obscure and is being worked on, we suspect it is related to the particular Spectrum ROM chip being used. In my case the Spectrum ROM has the markings AMI 8437 CCN 356 201 802 AUSTRIA. One ROM that the cartridge will not work with is marked NEC 8425X7 D 23128C 057. At the moment we are looking to see whether the problem is related to the speed of the chip, and the possibility of using an EPROM with the ROM data. ROM chips having the marking NEC are suspect.

The cartridge has an AUTOSTART feature. Simply put, you can save a program in such a way that by holding the ENTER key operated while switching the computer on will cause the disk drive to start automatically and load that previously specially-saved program. One of these special programs is permissible per disk. I make this special program the MENU for programs on that particular disk.

There is an NMI feature built into the cartridge. However, to make use of this feature you have to first build a special pushbutton circuit to trigger it. The instructions given for making up this button, while they may be adequate for the knowledgeable technician, I found were rather too sketchy for my level of expertise. I suggest that we shall have to have an article in the newsletter giving a more comprehensive description. Nevertheless, I have assembled the button circuit, and it does work as described. Load an unbreakable program from tape, press the NMI button momentarily, a 5-note tune is heard, press a key (1 to 5), the disk starts up and chugs along for 22 tracks, the final two notes of the tune are heard, and the action on the screen recommences. Very impressive.

Normally the total memory is captured from addresses 22490 to 65535. However, if you press the "S" instead of the key 1 to 5, the SCREEN will be saved, i.e. 6144 bytes starting at 16384.

I mentioned earlier that the instructions for the NMI button were sketchy. The same thing must be said about the documentation as a whole. It is likely that everything that one needs to know is contained in the four page manual. However, the paucity of detail makes the user strain to grasp the intent of the instructions. This is unfortunate, for it is a good system, and deserves better treatment.

One interesting aspect of the evolution of this system is the variety of DOS' that are available to it. Although one might be inclined to think that with the new cartridge DOS the earlier DOS' would no longer be useful, this is not the case. Quite a few utility programs have been written for the LARKEN system based on these disk DOS'. These utilities accessed various points in the DOS' for particular functions that were useful in the utility programs. It appears that the cartridge DOS is not nearly so accessible, therefore the disk DOS' will continue to be used in current utilities; and in future utilities that are written.

There is provision to piggyback a Spectrum EPROM onto the cartridge. Or an LROS cartridge EPROM can be installed. Instructions are supplied in the manual.

The cartridge contains several useful subroutines. One can open up to three "windows", and direct output to them.

There is a fast DRAW routine.

And a fast FILL routine which can fill an area with any of 8 different background patterns.

There is a print driver routine in the DOS EPROM. However I have not found out how to control the printer line length yet, so I am unsure of it's usefulness. Either I am missing the point, or some redesign is required on this feature.

Larry Kenny (LARKEN ELECTRONICS) advises that he is working up a new design disk interface board for the 2068 to be used with the cartridge DOS. Prices for the new interface board will be \$50 US, and \$65 US for the cartridge board, for a total of \$115 US. Of course, you will then need the drive itself, plus a power supply for the drive. Good value for a super disk system. I recommend it.

A PHRASE BOOK OF COMPUTERESE  
...WES BRZOWSKI. SINCUS (MAR/APR 86)

YOU'VE PROBABLY SEEN DOZENS OF GLOSSARIES OF COMPUTER TERMS. NEWSPAPER ARTICLES, MAGAZINES, AND EVEN SOME COMPUTER MANUALS CONTAIN LISTS THAT WILL LET YOU LOOK UP THE MEANING OF WORDS SUCH AS BYTE, RAM, FLOPPY DISK, ETC.

BUT YOU CAN'T LEARN FRENCH BY READING A FRENCH DICTIONARY. AND YOU CAN'T UNDERSTAND COMPUTERESE BY SCANNING A GLOSSARY. ALTHOUGH A TRUE UNDERSTANDING OF A LANGUAGE REQUIRES PRACTICE WE COULD REALLY USE A PHRASE BOOK. YOU KNOW, THE KIND TOURISTS TAKE WITH THEM WHEN THEY TRAVEL. THE LITTLE BOOK THEY OPEN AT THE RESTAURANT IN CHINA, JUST TO MAKE SURE THEY DON'T ACCIDENTALLY ORDER A STIR-FRIED TRACTOR.

HERE'S A SMALL LIST OF USEFUL COMPUTER PHRASES...AND WHAT THEY REALLY MEAN:

They'll be available in a couple of months	-- If enough people act interested we may start designing one	It's new and innovative	-- It's not compatible with anything
It prints near letter quality	-- The dot matrix is larger than 5X5	We won't be making it available: there's not enough of a market	-- The only guy who understood the thing left us to work for a more organized outfit
You won't be constantly referring to the manual	-- We don't provide much documentation	It's fully compatible	-- We heard that someone got it working, once.
They'll be available in a couple of months	-- The competition has announced one and we don't want you to buy theirs	They'll be available in a couple of months	-- We forgot to write the software for it
Ours is easier to learn	-- Ours doesn't do much	The owner installs it	-- You do the work and save us the labour costs
It's portable	-- We put a handle on it	It's the best one around	-- You expect us to say it isn't?
New low price	-- We got this deal on a load of reject parts that usually work OK	They'll be available in a couple of months	-- We've got to redesign it. We've been fiddling with it so long that they've stopped making the parts
They'll be available in a couple of months	-- The prototype still doesn't work for some reason	It's widely supported by third parties and user groups	-- If you have any questions we don't want to hear them
We've improved it	-- We think it's finally debugged	They'll be available in a couple of months	-- There's a sucker born every minute
They'll be available in a couple of months	-- We're trying to hire a designer who knows what the heck (s)he is doing	It's compatible with earlier models	-- We took the guts and put them in a new box
It'll upgrade your system	-- Now you won't crash as often		

AS YOU CAN SEE, THERE'S MORE TO COMPUTERESE THAN JUST WORD MEANINGS. NOTE THAT THE MEANING OF SOME PHRASES CHANGES DEPENDING ON HOW MANY TIMES THEY'RE REPEATED. WE CAN ALSO BE SURE THAT THOSE WHO ANNOUNCE SHIPPING DATES FOR COMPUTER PRODUCTS FULLY AGREE WITH EINSTEIN THAT TIME IS RELATIVE.



SPRING CLEANING

by Rudie Aalders

Many people think that cleaning the SPECTRUM and DISCOVERY is never necessary. But... look inside once in a while! What might look clean from the outside is not necessarily dust-free on the inside! And that dust could be very dangerous. If it starts collecting over the connectors, it could cause abnormal connections, with all sorts of unforeseeable results. This is a common cause for the SPECTRUM to crash, though this statement cannot be inverted (not every crash is due to this cause). I must admit, that because of the type of connection used for the combination, the OPUS/SPECTRUM is very susceptible to this problem.

The drive(s) can also be damaged by collected dust. If it gets into the moving parts of the drive, it could dry up and cause the head to fall off, damaging who knows what! This is not as far fetched as it sounds, for each time we do something with the disc --insert, extract...-- we move the arm in and out, giving dust and dirt a way in. Please be convinced of the damage dirt can cause!! If, for example, it collects on the head of the drive, (realise that each time we read or write to/from the disc, the head scrapes along the surface of it, collecting or transferring dirt), this could result in deterioration of performance of both drive and discs. Loading-times will increase due to the fact that certain sectors will be skipped (read to be faulty). Which in turn results in an 'unknown' command for drive re-try.

SOLUTIONS

Try cleaning your combination regularly with one of those table-top vacuum cleaners. Not with a 1000 watt cleaner, for you will have no chips left!! I recommend you dust it first, with a soft feather-duster (which gives you an excuse to drag your wife or girlfriend into your hobby). (Ed: I wonder how many members that remark is going to cost us!) If you don't have one of those small vacuum cleaners, use a big one very carefully! Don't press down on anything. Furthermore I advise everyone to clean the connectors regularly. Use an ink-eraser for this. This is one of the easiest ways to prevent crashes.

Store your discs in a closed box or drawer. There are special ones available from most dealers in computer material. Never force more discs into a box than it can hold comfortably.

Never grease the bearings of the drive, no matter how much noise it makes!! In my profession I have often recieved clients who have unknowingly oiled the bearings with a layer of oil or grease. This goes unnoticed for a while, after which discs turn out to be 'faulty' for no apparent reason!

THE CLEANSER DISC

These are available for 3.5" drives. Some can only be used once, others are for repeated use. If you ever decide to purchase one, remember NEVER to buy the 'dry' type!! This works as an abrasive, and only damages the drive head!! Be very selective when buying the other 'wet' type, for the fluid included in the set can dissolve the resin in which the drive head is set. In short, be very careful what you buy! Try to find out the experiences of fellow users before you buy.

TEST

I tested one type, known as 'HEADCLEANER 3.5" from ALLSOP. We were well informed as to the contents of the set. It contains a cleaning disc (SD) in a hard plastic casing and a pre-formed, sectioned aluminium strip with the correct amount of cleaning fluid in each section. As there are 30 sections, the set can obviously be used 30 times. The advantage of this system is that the user can never use too much or too little cleaning fluid.

Using the disc sounded simpler than it was. The first time it went round perfectly, but the second time it refused to work. FORMATTing seemed to get it going again. According to the instructions you moisturise the cleaning-disc and insert it into the drive. You then instruct your drive to 'turn'. We do not have this instruction, hence the FORMAT instruction.

Generally speaking the result with this set is satisfactory. I got the distinct impression that loading went smoother after cleaning, although I cannot prove this beyond doubt. I must mention, however, that some discs which previously had 'bad sectors' now turned out to be perfect.

I find this set steeply priced in the Netherlands.... Hfl 96,-. That's Hfl 3.20 per clean!! I suppose that it is worth it if a few people buy a set together.

## 2068 EXPANDING ARRAY

If you create an array for the storage of data, the chances are that you will dimension the array to be as large as it might need to be some time in the future. In this way, data can be added as needed without having to worry about "outgrowing" the array. However, if you are using tape for storage, SAVES and LOADS will be time consuming because of the huge array which may be mostly empty. A neat solution is to use an array which starts out with only one element and which grows as needed to be only as large as it needs to be to hold the data.

### HOW IT WORKS

The first program to be LOADED after the main BASIC program is "opnr", an 11 byte routine located out of the way at 65355. When it is activated in line 9998, it moves the whole BASIC program area 91 bytes higher in memory by calling the "open 80 spaces" routine in ROM at 12BB hex. The "expcode" is now tucked into the spaces just created, safely out of the way of the upcoming changes in the BASIC area. The first 8 bytes of code at 26710 are used for variables needed by the other two routines.

Line 30 is interesting. The LET N\$(1)=N\$(1) assignment statement, which seems to be a do-nothing quirky thing, is actually an essential part of the whole routine. When a variable is assigned a value, its address is stored in the system variable called DEST. The M/C routine at 26718 uses this value to locate the first element of the array. The parameters of the array are found by following the structure given on page 257 of the manual and then stored in the 4 variables mentioned earlier.

Line 40 inputs the data into the array element and displays it on the screen. Line 50 checks for a "STOP" to terminate the inputting of data. Line 60 gets interesting again. The location of the current element of the array is put into DEST and used by the M/C at 26754 to shift everything up in memory one array-width and to change the array parameters so that the 2068 knows that the array is one element longer.

## CREATING THE PROGRAM

If you do not have an assembler, type in the LOADER program first. Line 10 generates the 11-byte routine that moves the BASIC area. Line 20 calls that routine. The rest of the code is now generated underneath the BASIC program. RUN the program. Any typing errors in DATA lines 82 to 89 will be flagged. GOTO 9999 will save both M/C programs. Now type in the main program with both the M/Cs still in place. GOTO 9999 will SAVE all three programs. Then a GOTO 1 will call up the little menu. Option 3 will be the one to choose at this time. The prompt will permit you to create the array with any width you want. The length of the array is looked after by the program, of course.

Since the data is stored in an array, never RUN the program. Always GOTO 1 to reach the menu.

LARRY CRAWFORD

```
1 REM CODE LOADER FOR EXPANDING ARRAY - LD Crawford
10 CLEAR 65354: RESTORE 81: FOR f=0 TO 10: READ a: P
POKE (65355+f),a: NEXT f
20 RANDOMIZE USR 65355
30 RESTORE 82: FOR F=0 TO 7: LET T=0: FOR G=0 TO 9
31 READ A: POKE (26718+10*F+G),A: LET T=T+A: NEXT G:
READ A: IF A<>T THEN PRINT "DATA PROBLEM IN LINE ":82
+F: STOP
32 NEXT F
33 FOR F=80 TO 82: READ A: POKE 26718+F,A: NEXT F
34 STOP
81 DATA 42,83,92,43,1,91,0,205,187,18,201
82 DATA 221,42,77,92,221,34,86,104,221,102,1200
83 DATA 255,221,110,254,34,90,104,221,102,253,1644
84 DATA 221,110,252,34,88,104,221,102,250,221,1603
85 DATA 110,249,34,92,104,201,42,77,92,237,1238
86 DATA 75,90,104,9,43,205,187,18,221,42,994
87 DATA 86,104,42,92,104,237,91,90,104,25,975
88 DATA 221,116,250,221,117,249,34,92,104,41,1446
89 DATA 88,104,35,221,116,253,221,117,252,34,1441
90 DATA 88,104,201
9999 SAVE "opnr"CODE 65355,11: SAVE "expcode"CODE 2671
0,91
```

## Expanding Array Continued

FF4B 2A535C	OPNR	LD HL,(prog)	1 REM AN EXPANDING ARRAY FOR STORING DATA
FF4E 2B		DEC HL	3 REM LARRY CRAWFORD 87 04 26
FF4F 015B00		LD BC,005B	4 REM
FF52 CDBB12		CALL 12BB	9 GO TO 500
FF55 C9		RET	10 LET X=1: INPUT "WHAT IS WIDTH OF ARRAY?":W: CLS
6856 7E	FRST	LD A,(HL)	20 DIM N\$(1,W)
6857 6E		LD L,(HL)	30 LET N\$(1)=N\$(1): RANDOMIZE USR 26718: GO SUB 600
6858 0C	LAST	INC C	40 PRINT X: INPUT N\$(X): PRINT TAB 5:N\$(X)
6859 00		NOP	50 IF CODE N\$(X)=226 THEN GO TO 100
685A 02	WDTH	LD (BC),A	60 LET N\$(X)=N\$(X): RANDOMIZE USR 26754: LET X=X+1:
685B 00		NOP	60 TO 40
685C 1D	LNTH	DEC E	100 CLS : PRINT "DATA STORED IN ARRAY"
685D 00		NOP	110 FOR I=1 TO X-1: PRINT I:TAB 5:N\$(I): NEXT I
685E DD2A4D5C	INIT	LD IX,(dest)	120 STOP
685F DD225668		LD (FRST),IX	500 LET N\$(1)=N\$(1): RANDOMIZE USR 26718: BORDER 1: P
6860 DD66FF		LD H,(IX+FF)	APER 1: INK 6: CLS : PRINT TAB 11:"MENU"
6861 DD66FE		LD L,(IX+FE)	510 PRINT "1: DISPLAY ARRAY TO DATE""2: ADD TO EXIS
6862 225A68		LD (WDTH),HL	TING ARRAY""3: CREATE A NEW ARRAY""4: SAVE TO TAPE
686F DD66FD		LD H,(IX+FD)	""5: PRINT CONTENTS OF ARRAY""TAB 8: FLASH 1:"ENTE
6872 DD66FC		LD L,(IX+FC)	R CHOICE"
6875 225868		LD (LAST),HL	520 INPUT C: GO TO C+520
6878 DD66FA		LD H,(IX+FA)	521 GO TO 100
687B DD66F9		LD L,(IX+F9)	522 LET X=X-1: GO SUB 600: GO TO 60
687E 225C68		LD (LNTH),HL	523 GO TO 10
6881 C9		RET	524 GO TO 9999
6882 2A4D5C	XPND	LD HL,(dest)	525 LPRINT "CONTENTS OF ARRAY": FOR I=1 TO X-1: LPR
6885 ED4B5A68		LD BC,(WDTH)	INT I:TAB 5:N\$(I): NEXT I
6889 09		ADD HL,BC	600 CLS : PRINT "ENTER DATA" "(Use STOP to terminate
688A 2B		DEC HL	entries)""
688B CD8B12		CALL 12BB	610 RETURN
688E DD2A5668		LD IX,(FRST)	9998 LOAD "opnr"CODE : RANDOMIZE USR 65355: LOAD "expc
6892 2A5C68		LD HL,(LNTH)	ode"CODE : GO TO 500
6896 ED5B5A68		LD DE,(WDTH)	9999 SAVE "exp" LINE 9998: SAVE "opnr"CODE 65355,11: S
6899 19		ADD HL,DE	AVE "expcode"CODE 26710,91
689A DD74FA		LD (IX+FA),H	
689D DD75F9		LD (IX+F9),L	
68A0 225C68		LD (LNTH),HL	
68A3 2A5868		LD HL,(LAST)	
68A6 23		INC HL	
68A7 DD74FD		LD (IX+FD),H	
68AA DD75FC		LD (IX+FC),L	
68AD 225868		LD (LAST),HL	
68B0 C9		RET	

Communications

From the producers of the SPECTERM-64 Communications package:

Grey & Clifford Computer Products

Instructions for using SPECTERM-64 with disk drives- If you have loaded a file into the buffer with the JLO disk drive system ( or any other DOS system), to transmit that file, SPECTERM-64 needs to know the length of the file present in the buffer and where in the buffer it is located. Without this information, SPECTERM will assume that the buffer is empty and will obviously fail to transmit the file. Poke the 'sum value' of the length of the file plus the buffer start address into address locations 30816 and 30817 (30817 with the high value) to be transmitted via Xmodem. You can find the start of the buffer with FN P(X) formula as described on page 7 of the SPECTERM manual. The following routine should be added to the local control menu:

```
10 INPUT "ENTER CODE LENGTH":C
20 LET RCL = CL
```

```
30 IF INT(CL/128)<>CL/128 THEN LET CL =
  (INT(CL/128)+1)*128
40 LET HCL = INT((CL+FN P(30814))/256)
50 LET LCL = (CL+FN P(30814))-HCL*256
60 LOAD (your system's syntax) CODE FN P(30814)
70 POKE 30817,HCL:POKE 30816,LCL
80 IF CL>RCL THEN FOR F = 34048+RCL TO 34048+CL:POKE
  F,0
90 NEXT F
100 GOTO 1500 <--jump back to menu
Note HCL ="high byte" of code length
      LCL ="low byte" of code length
```

Downloaded and reiterated by L.Foss and R.Mulder



# BOB'S NOTEBOOK

FOR LARKEN DOS USERS!  
\*\*\*\*\*

For any of you who like to stick a copy of the disk directory on your diskette covers and also would like to be able to show the date and disk number on the directory, have I got a program for you!

Type it in and give it a whirl.

```

100 REM DATE
105 REM *****
110 OUT 84,64: RANDOMIZE USR 63
488: REM save "dire.B1"
120 RANDOMIZE USR 63488: REM to
ad "LDOS48.C5"
130 CLS
132 LET copy=0
135 INPUT "make dupes? y/n " L
INE i$
136 IF i$="y" THEN LET dupe=1
137 IF i$<>"y" THEN LET dupe=0
140 INPUT "screen/printer? s/p
" LINE s$
142 IF s$="s" THEN LET dupe=0
150 BEEP .1,10: INPUT "date (yy
mmdd) " LINE d$
152 PRINT : BEEP .1,10: INPUT "
disk # " LINE n$
155 OPEN #2,s$
160 PRINT d$
165 IF s$="p" THEN PRINT
170 LET trac=50501
180 LET loadtrac=48053
190 LET prdir=48518
200 PRINT AT 3,0,: POKE trac,0
210 RANDOMIZE USR 48302
220 RANDOMIZE USR loadtrac
230 RANDOMIZE USR 81
240 RANDOMIZE USR prdir
245 IF copy THEN GO TO 280
250 LET tot=0: FOR i=50589 TO 5
0667
255 IF PEEK i<128 THEN LET tot=
tot+1
260 NEXT i
270 LET file=0: FOR i=50679 TO
52527 STEP 34
275 IF PEEK i<>249 THEN LET fil
e=file+1
277 NEXT i
280 PRINT "NUM OF FILES: ";fi
le
285 PRINT "TRACKS OPEN: ";tot
295 IF copy THEN LET copy=0
320 PRINT INVERSE 1;"disk# ";
n$
330 IF s$="p" THEN PRINT "####
*****"
340 IF s$="p" THEN PRINT "####
*****"
350 IF dupe THEN LET dupe=0: LE
T copy=1: GO TO 160
360 PRINT #0;"Press break or in
sert a new disk"
370 CLOSE #2: PAUSE 0: GO TO 13
0

```

870422

swt.B1	012 tax65.B1	008
LDOS16.C5	002 menu.B1	003
cab:fl.B1	003 gashyd.B1	012
lpfile.B1	013 drctry.B1	011
cable.B1	003 LDOS48.C5	002

NUM OF FILES: 10

TRACKS OPEN: 10

disk# 101 SPECTRUM

\*\*\*\*\*

Things to note:

1. You can make an extra copy of each directory if you need it (I keep a notebook with the extras for back-up purposes).
2. The unnecessary data which you get when you print the directory using one of the disk versions of LDOS has been left out (LDOS+ etc.).
3. You can add more than the disk number at the bottom: e.g. SPECTRUM.
4. The term "TRACKS OPEN" has been used instead of "FREE BLOCKS" which sounds like a misnomer to me.
5. Lines 250 to 260 get the number of Tracks Open from the data on track 0 while lines 270 to 277 get the number of files. This basic procedure is slow but is adequate for the job it does. The whole program could be compiled into machine code but I leave that to the reader.
6. Note the use of flags 'copy' and 'dupe' to control the output flow depending on whether you want duplicates or not. The flags take effect at line 350. 'IF dupe' of course is the same as 'IF dupe=1'. The value of 'copy' is toggled back to zero at line 295.

Bob Mitchell May 87

P.S. For Timachine Users:  
If you ever use OPEN# 2,"p" in your BASIC programs, follow it with CLS or copying may not go right in the compiled version.  
RHM

# DISK DROPPINGS

by Greg Lloyd

Ever wonder what VuCalc ala 2068 is good for ? Me too. All those rows and columns and that lousy COPY command the only way to output. Three columns of 18 lines on bathroom tissue is the sort of thing that makes Lotus-123 owners stop and stare. Well, after reading a short program to modify VuCalc to output to a full size printer in ZX Computing a few months back, I decided to find out what 132 columns would look like on real paper. The program mods in ZX-C were for the Speccie so I made the necessary mods to fit the 2068. Basically the version on the Spectrum is a matrix 60 by 60 cells, the 2068 is 50 by 50. The code is in a slightly different place. No problem once you know where to look. Below are the lines you'll need to add.

```
2000 CLS : INPUT "NUMBER OF COLUMNS (MAX 18)";X:
    LET X=X* VAL "7"
2010 IF X > VAL "80" THEN LPRINT CHR$ 27;CHR$ 27;
    CHR$ 27;CHR$ 20;:REM compress mode (132 col)
2020 INPUT "START AT COLUMN ?(1 TO 50)";Y:
    LET Y=Y-SGN PI
2030 INPUT "START AT ROW ?(A TO AX)";Z$:IF LEN Z$
    = SGN PI THEN LET Z$=" "+Z$
2040 IF Z$(2)="" THEN LET Z=CODE Z$(1)-VAL "97"
2050 IF Z$(2)<>"" THEN LET Z=(CODE Z$(2)-VAL "97")
    + (VAL "26"AND Z$(1)="a")+(VAL "52"AND Z$(1)
    ="b")
2060 INPUT "NUMBER OF LINES ?(1 TO 50)";R:LET R=
    R-SGN PI
2070 LET Q= VAL "34573"*(VAL "7"*Y)+(VAL "350"*Z)
2080 FOR F=Q TO Q+(R* VAL "350") STEP VAL "350"
2090 FOR G=NOT PI TO X
2100 LPRINT CHR$ PEEK (F+G);
2110 NEXT G
2120 LPRINT
2130 NEXT F
2140 GOTO USR E3
```

Now the explanation:

2000 - sets up the width of the printout.  
 2010 - the cells are 7 characters wide so get into compressed mode if more than 80 characters need to be printed out. I have a Tasman I/F and Tandy 105 printer-hence the bizzare codes in line 2010.  
 2020 - point at where you want to start printing.  
 2030 - point at what row to begin on.  
 2040 - 2050 raz ma taz to fix up what you just entered. Proper spacing and all that.  
 2060 - how long do you want this to go on for.  
 2070 - here's where the code is and how it's spaced out. Blocks of 7 starting at 34573.  
 2080 - 2130 print it out.  
 2140 - BACK TO WORK

Some space saving code has been used to keep it small and hopelessly confusing. That's why you pay big bucks to read my column. I load my print driver code in at 64715 and have no conflicts with the data. In fact, the data segment of VuCalc ends below 61000. Now You can use that program you had to have but soon discovered was as useful as ZX-Forth remember that stinker? Greg Lloyd 5/20/87

## GAME TIPS

### TOMAHAWK

#### Game tips

For a flash take-off in combat mode you want to get up speed fast. Take the controls up to 100% torque and push the nose down to 30 degrees. You'll go from 0-100 in less than 6 seconds. Not bad eh? Don't worry too much about landing. you can land anywhere, and then taxi up to the pad, using your rudder to steer.

It's a good idea not to be too high or to low when attacking. You always have to point the nose down, and if you're too high you'll find yourself diving too fast. You can't shoot tanks with guns, only rockets and missiles.

The conventional way of slowing down is to roll left and right which generates more drag. To make a tight turn, pull the nose up as you roll. It's easier to hit the enemy helicopter when it's on the turn. It can't fly through the mountains, so if you sit behind them, it'll have to come over the top and dive. Beware though, on Mode 1, the helicopters will try kamikaze as they can't shoot you down.

In the strategy game, option 4, the division of territory is always different.

If you want an easier game, keep on breaking out until you get one you like. Also in the strategy game, take out a whole row of enemy position if you can, as they won't be able to recapture any once that row is complete. But be careful, they can do the same to you.

## Software Review

### Multi-Draw 2068

Cost (1985) 24.95 U.S.

This graphics package is very similar to a sister program for the Spectrum called The Artist although the latter is somewhat more sophisticated. Basically, the program runs in a format that is commonly referred to as menu driven. That is to say that there is something almost always on screen to display the commands or functions available for the software package. The alternative is called command driven, where the commands or utilities are documented on paper and are to be memorized in order to make adequate use of the software package.

Multi-Draw has a command line at the bottom of the screen that consists of the following structure:

column 0 menu list options  
1 for text input  
2 8X magnification  
16 attributes and colour  
17 bright  
18-31 switches between udg's

The commands available are:

Draw, Colour, Big Pnt, Sm. Pnt, Gry Pnt, Copy, Save PG, Load PG, Save S\$, Load S\$, Basic, Clr S\$

A joystick is required in order to access the various functions as well as to do the drawing. As the diagonal positions are used to obtain the appropriate commands etc., it is most important that a good joystick is acquired in order to detect the angles properly.

What is most alarming and somewhat strange, is that to do a circle you have to exit to basic and do it from there. It was nice to find that the program caters to a large printer, but which one is a good question. It certainly will not work on a Fastext 80. The other facilities of the program were to a great extent applied much better in other graphics packages but are functional in this one.

It would have been nice to have had windows, rubber banding, circle, merge and airbrush to name a few, but I suppose that for most people interested in producing banners or post cards, this program will suffice.

It is rather obvious that the author is somewhat biased against this software package, particularly in the light that the Timex 2068 has available a far superior graphics utility called hi-res colour and display modes, and yet no one, and in this case the authors of this software, have not applied it. Should such a facility have been catered to, then I surmise that the resulting software would have been able to blow all other graphics packages away!

Rather than continue in reviewing each and every

graphics software package that is currently on the market, or more precisely, that is in my software library, I propose to list those packages and indicate against each one, whether or not it contains a certain facility that I feel desirable as a major item. It should be noted that in the grading or assessment, if a facility was a complicated process or unmanageable, then it is deemed to be not in existence. Also, if through basic, there was the possibility to apply the program to disk drives or micro-drives, then it was determined that it exists.

If other software packages are out there such as ART WORX or PC DRAW-2068 add them to the list as well to get a good picture of an overall standing. The reason that I have not included them is obvious, I don't own it.

Without further ado:

Package#	1	2	3	4	5	6	7
-----+-----+-----+-----+-----+-----+-----							
Content							
-----							
Machine type	TS	ts	sp	sp	sp	sp	sp
J.sk/k.bd/a.ll	J	J	a	J	J	J	k
T.2040/l.arg	l	l	l	t	t	t	t
elastic(y/n)	n	n	y	n	y	n	n
prog.draw	n	n	n	n	y	n	n
udg's/edit	n	y	y	y	y	y	n
colour contr	y	y	y	y	y	y	y
erase	y	n	y	y	y	y	y
restore eras	n	n	y	n	n	n	n
fill	y	n	y	y	y	n	n
textures	n	n	y	n	y	n	n
air brush	y	n	y	n	n	n	n
magnify	n	y	y	y	y	n	y
save(t.m.d.a)	a	a	m	t	m	t	t
grids	y	y	y	y	y	n	n
menus	y	y	y	y	n	n	y
full graphics	n	n	y	y	y	n	n
manual/doc.	n	y	y	y	y	y	y
text input	y	y	y	y	y	y	n
overall(20)	10	9	18	11	14	6	8

#### LEGEND:

- 1 = Top Drawer
- 2 = Multi-Draw 2068
- 3 = Art Studio
- 4 = The Artist
- 5 = Leonardo
- 6 = Paintbox
- 7 = 3d-Vu

Roelof Mulder



**A WORD OF CAUTION:** Any hardware project for your computer must be approached with extreme caution. SYNC cannot be responsible for any problem that may arise from attempting hardware projects. Obviously, any damage to your computer can be costly in time and money.

# The Great RAM Rescue

Randall S. Glidden

Reprinted from March/April 1984 SYNC

## The Unused 1K-2K Space

So, do those of you who have upgraded your ZX81/TS1000 to 16K ever feel sorry for that unused 1K-2K RAM, sitting unloved and unneeded inside your computer? Why not put it to work for you by wiring together this little circuit? It will convert your on-board RAM into a handy little place to put machine code programs, cost under \$10, and, if you are handy, take about 15-30 minutes to wire up. Here, nestled away, will be a memory location unaffected by LOAD, NEW, and (with a little switch) MC induced crashes.

The on-board RAM begins at address 16384 (4000h), and it is deactivated when you plug in an external RAM pack. This is done by putting the +5 volts to the RAM chip select line (RAM CS), which turns off (deselects) the internal RAM chip. (The RAM chip is active or selected when RAM CS is low, i.e., close to 0 volts.) You can use this internal RAM at any address you desire, simply by making RAM CS low whenever a certain range of addresses is called for.

For machine code programmers a convenient place to use in the Sinclair memory map is the area 8192-16383, since it is not affected by LOADING or the NEW command. Ordinarily this area is occupied by the ROM operating system which selfishly repeats itself there out of its "normal" position between 0 and 8191. This was done apparently for simplicity of decoding—the Sinclair logic chip makes ROM CS low (i.e., turns on the ROM) whenever the A14 address line is low (therefore from addresses 0-16384 and again from 32768-49151).

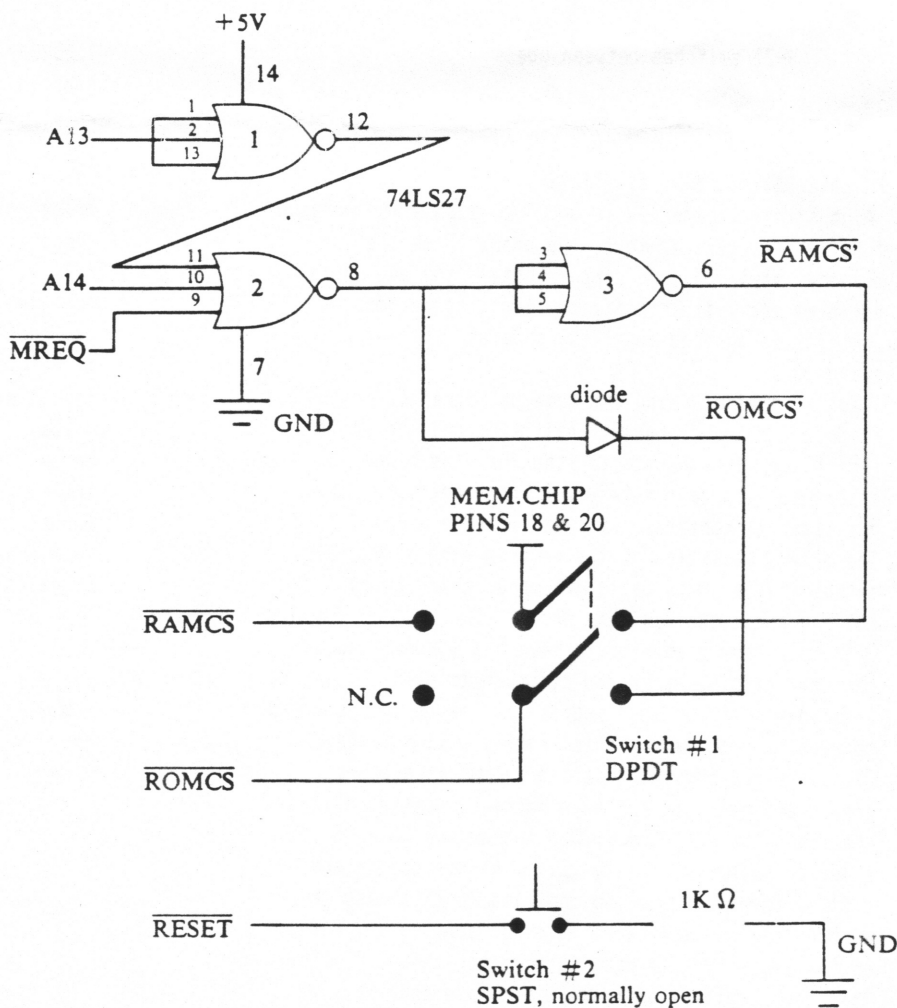
## Opening the 1K-2K- Space

To free up some of this wasted space all you have to do is put ROM CS high whenever some of these addresses are

## Author's Addendum

It has recently come to my attention that newer TS1000s have a printed circuit layout that differs from that of the ZX81 and early TS1000s. Because of this, before you attempt this modification, be sure that your circuit board conforms to the pattern shown in the figure. If it is not the same, you can probably still perform the "RAM rescue," but you will have to identify the proper connections from the appropriate ROM or CPU pins as noted.

Figure 1. Schematic for RAM/ROM decoder and RESET switch.



Randall S. Glidden, M.D., 185 Chiswick Rd., Brighton, Mass. 02135.

To be continued next issue

## QL WAYFARER BY REGINALD COTTLE

Once called "QL Corner" this column now hopefully has a singularly significant name. It appears that the Plotter, another circulating newsletter, is running articles by members in a QL Corner column. Way to go Plotter!

Due to the family obligations of becoming a first time father, my column was conspicuous by its absence in the last Newsletter, my apologies.

At this time I would like to thank Frank French on behalf of all our QL users for making the first contribution to our QL software library. It consists of two working games down-loaded from Compuserve. One is Spaceport 2001, an aliens game with some very nice graphics, and the other is T.V. Game, a stock manipulation game of chance for 2 to 4 players.

The QL library will consist of public domain software supplied for material cost and the cost of handling on a library supplied medium to club members it is free of charge to members on a medium of their choice (either 3 1/2" disc or micro-cassette) that accompanies their request and a stamped self addressed mailer. Library catalogue listings will be available and updated as new titles appear and made available to members for a request and a stamped self-addressed return envelope. Non-members are welcome to use the library on a one programme for one programme exchange basis. We will also distribute member and patron copyrighted software for a small sum, we are a non-profit club and therefore the charge is to cover royalties and handling only. This service will be considered as part of the member service of the library and copyrighted programmes will not be available as exchange programs.

Unlike other software libraries, we will not distribute review copies of copyrighted software. Proof of copyright and letters of assignment must accompany any copyrighted contribution. To kick off our campaign to expand our QL library a special one time offer is being made to the first one hundred contributors who are members or non-members. The medium you submit with your contribution will be returned to you with copies of all the recent public domain contributions that we have received, free of charge. This offer is in effect until notice is given that our goal has been reached.

Any Manuals or help files must be submitted in the form of A Quill File. As the contributions are received they will be reviewed in the QL Wayfarer.

As a kickoff to our regular user access of the library in our next issue look for an update and review of our catalogue as well as an outline of our service charges and royalties fee schedule. To make a contribution or receive further information address your inquiries to:

TTSUC-QLL  
c/o Reginald Cottle  
790 Eglinton Ave. West  
Apt. 411  
Toronto, Ontario  
M5N 1G1

A rumour is making its way around Compuserve that ZX Computing is putting out its last issue in June.

Doug Dewey is either dead or has left the planet. Anyone knowing of his whereabouts should let it be known as members in Toronto have ordered things from him and have not received any response to enquires as to the fate of their goods.

Regarding TL Davis Home Computer Club.....The SUFFOLK CONSTABULARY FRAUD SQUAD are VERY intersted in this organization. If anyone has had any trouble with this Club, no matter how trivial, please contact:  
Detective Sargeant Beach  
Suffolk Constabulary Force  
Headquarters, Fraud Squad  
Martlesham Heath  
Ipswich, England

### MURPHY'S LAWS OF COMPUTING

A specialist is somone who knows more and more about less and less until he gets to the point where he knows absolutely everything about mothing.

A conclusion is what you come to when you reach the point where you can't think anymore.

You can always spot an expert in the crowd. It's the person who says the project will take the longest to complete and will cost the most.

The component which has the shortest life span, will always be located in the least serviceable position.

Any circuit design will always contain at least one part which is obsolete, two parts which are no longer obtainable, and three parts which are still under development.

IPS 7QS

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